

Amendments to the Claims

Claim 1 ((Previously presented): A method for hands free voice communications using a personal communications device comprising:

sensing a bone conduction signal from a bone conduction sensor fitted to the contours of a posterior superior wall of an external auditory canal of a user such that the posterior inferior wall of the external auditory canal remains unobstructed to allow ambient sound into the external auditory canal and to avoid an occlusive effect;

transmitting the sensed bone conduction signal from a transmitter to the personal communications device; and

processing the sensed bone conduction signal at the personal communications device to create a processed audio signal.

Claim 2 (Previously presented): The method of claim 1 wherein the personal communications device includes a PDA.

Claim 3 (Previously presented): The method of claim 1 further comprising transmitting the processed audio signal from the personal communications device over a cellular transceiver.

Claim 4 (Previously presented): The method of claim 1 further comprising transmitting the processed audio signal from the personal communications device to a receiver disposed within an earpiece worn by the user; and sending the processed audio signal from the receiver to a speaker disposed within the earpiece.

Claim 5 (Original): The method of claim 1 further comprising performing a voice recognition function using the processed signal.

Claim 6 (Original): The method of claim 1 further comprising performing a voice activation function using the processed signal.

Claim 7 (Previously presented): A method for hands free voice communications using a personal communications device comprising:

- sensing an air conduction signal from an air conduction sensor nonocclusively disposed within an external auditory canal of a user such that at least one wall of the external auditory canal remains unobstructed;
- sensing a bone conduction signal from a bone conduction sensor nonocclusively disposed within the external auditory canal of the user and positioned against a posterior superior wall of the external auditory canal;
- transmitting the sensed air conduction signal and the sensed bone conduction signal from a transmitter located in an earpiece to a personal communications device; and
- processing the sensed air conduction signal and the sensed bone conduction signal at the personal communications device to create a processed audio signal.

Claim 8 (Previously presented): The method of claim 7 further comprising transmitting the processed audio signal from the personal communications device over a cellular transceiver.

Claim 9 (Previously presented): The method of claim 7 further comprising transmitting the processed audio signal from the personal communications device to a receiver disposed within an earpiece worn by the user; and sending the processed audio signal from the receiver to a speaker disposed within the earpiece.

Claim 10 (Original): The method of claim 7 further comprising performing a voice recognition function using the processed signal.

Claim 11 (Original): The method of claim 7 further comprising performing a voice activation function using the processed signal.

Claim 12 (Previously presented): A method for hands free voice communications using a personal communications device comprising:
sensing an air conduction signal from an air conduction sensor proximate an external auditory canal of a user;
sensing a bone conduction signal from a bone conduction sensor fitted to a posterior superior wall of the external auditory canal of a user such that at least one wall of the external auditory canal remains unobstructed;
transmitting the air conduction signal and the bone conduction signal from a transmitter disposed within an earpiece to a personal communications device; and
processing the bone conduction signal and the air conduction signal at the personal communications device to create a processed audio signal.

Claim 13 (Previously presented): The method of claim 12 wherein the air conduction sensor is in a position proximate the posterior superior wall of the external auditory canal and an opposite wall is unobstructed.

Claim 14 (Previously presented): The method of claim 12 wherein the personal communications device includes a PDA.

Claim 15 (Previously presented): The method of claim 12 further comprising transmitting the processed audio signal from the personal communications device over a cellular transceiver.

Claim 16 (Previously presented): The method of claim 12 further comprising transmitting the processed audio signal from the personal communications device to a receiver disposed within an earpiece worn by the user; and sending the processed audio signal from the receiver to a speaker disposed within the earpiece.

Claim 17 (Original): The method of claim 12 further comprising performing a voice recognition function using the processed signal.

Claim 18 (Original): The method of claim 12 further comprising performing a voice activation function using the processed signal.

Claim 19 (Previously presented): A system for hands free voice communication using the processing capabilities of a personal communications device comprising:

- an earpiece housing;
- an air conduction sensor adapted to be nonocclusively disposed within an external auditory canal of a user and operatively connected to the earpiece housing and capable of transducing air conduction signals;
- a bone conduction sensor adapted to be nonocclusively disposed within an external auditory canal of a user and operatively connected to the earpiece housing and capable of transducing bone conduction signals;
- a transmitter operatively connected to the air conduction sensor and the bone conductor sensor and attached to the earpiece housing for simultaneously transmitting the air conduction signals and the bone conduction signals;
- a personal communications device having a processor adapted for processing audio signals; and
- a receiver electrically connected to the personal communications device for receiving the air conduction signals and the bone conduction signals.

Claim 20 (Previously presented): The system of claim 19 further comprising a cellular transceiver electrically connected to the personal communications device for transmitting processed audio signals.

Claim 21 (Previously presented): The system of claim 19 further comprising a speaker attached to the earpiece housing; a second receiver attached to the earpiece housing and the speaker; and a second transmitter operatively connected to the personal communications device adapted to transmit the processed audio signals to the second receiver.